EV4161
composite video signal monitor

The EV4161 is a full specification unit with simplified controls for use in VTR and Telecine bridges, camera control units, and production desks. Combining the essential features of both vector and waveform monitor in one compact unit, the EV4161 provides a bright, high-contrast display of each major parameter of the colour television signal.

DISPLAY

10 x 8cm rectangular flat-faced CRT with an aluminium-backed P31 phosphor. Accelerating potential approximately 6kV.

DISPLAY CONTROLS

INTENSITY (brilliance), FOCUS and SCALE ILLUM on front panel TRACE ALIGN on rear panel. ASTIG internally preset.

SIGNAL CONNECTIONS

INPUTS: Three pairs of 75 ohm BNC sockets on rear panel allow loop-through (bridging) connections to the A and B input amplifiers and the external reference input amplifier. Return loss better than 40dB in each case. Maximum input ±5V d.c. + peak a.c.
VIDEO OUT: Buffered output of selected (A or B) input signal. Nominal unity gain into 75 ohm load. Output impedance 75 ohms nominal.

WAVEFORM MODE SYNCHRONISATION

EXT REF front panel switch allows selection of an internal or external reference. Internal reference is obtained from the displayed composite signal (lV ±6dB amplitude). External reference may be a composite, black-and-burst or mixed-sync signal with sync and burst amplitudes of 300mV +6dB.

SWEEP RATES

Vertical: 2V MAG, 2V and V.
Horizontal: 2H MAG, 2H, and H.
Suppression circuit prevents flare on MAG ranges.
Timebase free-runs in the absence of sync.

SWEEP ACCURACY

MAG ranges are set to show blanking intervals, accuracy ±3%. A multi-turn horizontal position control allows viewing of any part of the expanded sweep.

VERTICAL AMPLIFIER

Amplitude Calibration: IV ±1%
Frequency Response: W FORM (flat): ±2%, 15kHz to 6MHz. Pulse Response: tilt <1%, overshoot and ringing<2%. LP: Low pass filter similar to IEEE standard 205. CHR: Bandpass filter centred on subcarrier frequency. Response at fsc within 1% of that in W FORM position. Bandpass (-3dB) ±750kHz nominal: CHR GAIN control operates in this mode. Gain may be increased at least 5 times to allow differential gain and coder balance checks.

CALIBRATION

A 1V ±1% pk-pk square wave from an internal source is connected when CAL is selected. Frequency approximately 60kHz.

DC RESTORER

Back porch level maintained substantially constant on display, regardless of waveform mean level or amplitude changes. Hum (up to 1V pk-pk) in input signal can be viewed with attenuation of 20% or less. Maintains <1% change in vertical position of trace on 10% to 90% APL bounce test. May be disabled by front panel DC REST switch.

ILLUMINATED GRATICULE

PAL: Scaled from 0 to 120% in 10% divisions. Baseline major divisions represent 1us on 2H MAG and 200us on 2V MAG.
NTSC: Scaled in IRE units from -40 to +100 in 10 unit divisions with a 7.5 unit reference line. Baseline calibration as PAL.

VECTOR MODE

Relative Vector Gain and Phase Accuracy: 1.5% and 1.5° respectively.
Differential Gain and Phase: Less than 1% and 1° respectively.
Phase Control Range: 360° continuous rotation.
Phase Reference: Taken from burst on displayed signal, or from burst on signal (composite or black and burst) applied to external REF input. Phase changes <2° for a ±6dB change in burst amplitude.
CHR GAIN Control: Increases vector size at least five times.
Phase Shift: Less than 3° with 5 times chrominance gain variation.

VECTOR SELECTION

Selection of VECTOR switch position provides normal vector displays. On PAL versions, the selection of PAL causes an internal electronic switch to produce a "6-vector" (+V) display for precise phase comparisons.

ILLUMINATED GRATICULE

PAL: Boxes represent limits of ±5% amplitude and ±3° phase. Burst, U and V axes marked for phase and amplitude.
NTSC: Inner boxes represent limits of +2.5% amplitude and ±2.5 phase. Outer boxes represent ±20% and +10% respectively. Burst, I and Q axes marked for phase and amplitude. Differential gain and phase checks are facilitated by graticule markings on the left-hand side of the calibrated circle.

POWER REQUIREMENT

97V to 130V or 195V to 260V, 50 to 60Hz, internally selected. Consumption 40VA nominal.

OPERATING TEMPERATURE

0°C to +45°C.

WEIGHTS AND DIMENSIONS

Height: 132mm, width: 216mm, depth: 433mm, weight: 8kg approx.

EV4161-D

Can interface with serial digital & composite equipment offering 2 x SD inputs with a re-clocked serial output in addition to 2 x analogue composite loop through inputs

SPECIFICATIONS

Serial Input: SMTPE 259M 270mb, (SDI)
SDI Cable Equalization: 300 meter
Serial Output: Equalized, Re-clocked
Frequency Response:
+/- 0.25dB to 5 MHz, -0.5db at 5.5 MHz (Y)
+/- 0.25dB to 1.7 MHz, -1.7db at 2.0 MHz (Chroma)
2TK factor: <0.6% (Y)
Diff. Gain: <1.0%
Diff. Phase: <1.0%
Y/C delay: 15ns max
D/A Converters: 10 bits
Signal Path: 8 bits
Delay (input to output): 1.5us
Output level adjustment: +/-10% (internal)
Output level matching: 2% or 14mv (All outputs are separately buffered)

All other specifications are as the EV4161

EV4161/4161-D

All products supplied by Electronic Visuals Ltd conform to the EMC regulations and are CE marked.

In line with its policy of continuous product development, Electronic Visuals reserve the right to modify specifications without notice.

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